In the Claims

The following listing of claims will replace all prior versions and listings of the claims in the application.

1. (Previously presented) A heat exchanger, comprising a shell designed as a pressure vessel, provided with shell-sided supply and discharge means with which the shell can be flowed through with a first medium under pressure, further comprising a nest of tubes extending at least partly within the shell, provided with tube-sided supply and discharge means with which the tubes from the nest can be flowed through with a second medium in heat exchanging contact with the first medium under pressure, of which nest the individual tubes are each included with a supply and discharge side in tube bores extending substantially transversely to a plane of a tube plate included in the shell, wherein each of the tubes is separately connected with the tube-sided supply and discharge means via connecting channels located in the plane of the tube plate and crossing the tube bores, and wherein the tube plate comprises a flat body part with a number of the tube bores equal to a number of the tubes extending substantially transversely to the plane of the body part between a back face and a top face of the tube plate, and the connecting channels being located in the plane of the tube plate and crossing the tube bores.

2. (Original) A heat exchanger according to claim 1, wherein the connecting channels comprise straight bores each crossing at least two tube bores.

3. (Previously Presented) A heat exchanger according to claim 1, wherein the tube bores are designed to be continuous and are sealed with plugs.

4. (Original) A heat exchanger according to claim 3, wherein the plugs are detachable.

5. (Canceled)

6. (New) A heat exchanger, comprising:

a) a shell having a shell-sided supply and a shell-sided discharge through which a first medium under pressure can flow;

b) a tube plate fixed to the shell, the tube plate extending generally in a plane and including:

i) a back face

ii) a top face,

iii) a plurality of supply tube bores and a plurality of discharge tube bores extending substantially transversely to the plane of the tube plate from the back face to the top face, and each tube bore extends through the back face and through the top face;

iv) at least two connecting channels located in the plane of the tube plate and extending generally transversely to the supply tube bores and the discharge tube bores, a first one of the connecting channels crossing at least a first plurality of the supply tube bores whereby the first plurality of supply tube bores are in flow communication with the first connecting channel, and a second one of the connecting channels crossing at least a first plurality of the discharge tube bores whereby the first plurality of discharge tube bores are in flow communication with the second connecting channel; and

v) a tube-sided supply in flow communication with the first connecting channel and a tube-sided discharge in flow communication with the second connecting channel; and

c) a nest of tubes extending at least partly within the shell, each tube having a supply side connected to a respective one of the supply tube bores and a discharge side connected to a respective one of the discharge tube bores.

7. (New) A heat exchanger according to claim 6, wherein the supply tube bores and the discharge tube bores are sealed with plugs that extend through the top face.

8. (New) A heat exchanger according to claim 7, wherein the plugs are detachably disposed within the supply tube bores and the discharge tube bores.

9. (New) A heat exchanger, comprising:

a) a shell having a shell-sided supply and a shell-sided discharge through which a first medium under pressure can flow;

b) a tube plate fixed to the shell, the tube plate extending generally in a plane and including:

i) a back face

ii) a top face,

iii) a plurality of tube bores extending substantially transversely to the plane of the tube plate from the back face to the top face, each tube bore extending through the back face and through the top face;

iv) at least one connecting channel located in the plane of the tube plate and extending generally transversely to the tube bores, the connecting channel crossing at least a first plurality of the tube bores whereby the first plurality of tube bores are in flow communication with the connecting channel; and

c) a nest of tubes extending at least partly within the shell, each tube being connected to a respective tube bore.

10. (New) A heat exchanger according to claim 9, wherein the tube bores are sealed with plugs that extend through the top face.

11. (New) A heat exchanger according to claim 10, wherein the plugs are detachably disposed within the tube bores.

12. (New) A tube plate for use in a heat exchanger, comprising:

a) a back face,

b) a top face,

c) a plurality of tube bores extending substantially transversely to the back and top faces of the tube plate from the back face to the top face, and each tube bore extends through the back face and through the top face;

d) at least two connecting channels extending generally parallel to the back face and top face of the tube plate and extending generally transversely to the tube bores, a first one of the connecting channels crossing a first plurality of the tube bores whereby

the first plurality of tube bores are in flow communication with the first connecting channel, and a second one of the connecting channels crossing a second plurality of the tube bores whereby the second plurality of tube bores are in flow communication with the second connecting channel; and

e) a tube-sided supply in flow communication with the first connecting channel and a tube-sided discharge in flow communication with the second connecting channel.

13. (New) A tube plate according to claim 12, wherein the tube bores are sealed with plugs that extend through the top face.

14. (New) A tube plate according to claim 13, wherein the plugs are detachably disposed within the tube bores.